201081US3

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

| | |
|---|---|
| IN RE APPLICATION OF | : |
| Hiroshi FUKUMOTO, et al. | : EXAMINER: KIM, C. |
| SERIAL NO: 09/750,664 | : |
| FILED: January 2, 2001 | : GROUP ART UNIT: 3752 |
| FOR: LIQUID SPRAYER | : |



REPLY BRIEF UNDER 37 C.F.R. § 1.193

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

This is a Reply to the Examiner's Answer mailed January 21, 2004. An Appeal Brief was timely filed on November 3, 2003.

## REPLY TO EXAMINER'S ANSWER

As described in the Appeal Brief, Appellants' invention is directed to a liquid sprayer for spraying a conductive liquid on an object. The liquid sprayer can be used, for example, on an inkjet head of a printer. An inkjet head sprays ink on a printing paper so that the ink adheres to the printing paper. The sprayed ink tends to float in the area between the inkjet head and the printing paper before the ink reaches the paper, and thus there is a high possibility of the ink adhering to undesired positions on the paper. Accordingly, the invention improves the resolution of the desired printed pattern by providing a liquid sprayer that precisely controls the range of liquid adhering to the object.

According to a feature of the invention, a liquid sprayer is provided with a liquid holder exposing a liquid surface of conductive liquid sprayed on an object, and a field applier forming an equipotential surface convexed with respect to the liquid surface of a conductive liquid sprayed on an object, as recited in Claim 1 of the present application.

## THE FIRST ISSUE

Claims 1-3 are not indefinite under 35 U.S.C. §112, second paragraph.

Firstly, the Appellants note that there is nothing inherently contradictory about the two approaches described in the Examiner's Answer on page 4, line 14, through page 5, line 13. Secondly, the conclusions reached by the Examiner appear to revolve around the notion that if two limitations in a claim can be broadly construed to encompass a single structural element, then the claim is indefinite. The Appellants respectfully disagree that the claim limitations of the present application are indefinite.

In the present instance, Claim 1 has being rejected as being indefinite for containing a double inclusion based upon the recitation of "a field applier" and "a liquid holder." The Appellants have noted that the present application describes a non-limiting embodiment of a field applier that includes a nozzle plate (3), a back plate (4), and a dc voltage source (5), and that a portion of the field applier, namely nozzle plate (3), also serves as a portion of the liquid holder. (See page 7 lines 17-25, of the specification.) However, the Appellants submit that such a recitation does not render the claims indefinite. As noted in the Appeal Brief and as stated in MPEP 2173.05(o), "[t]here is no *per se* rule that 'double inclusion' is improper in

a claim." (Citing *In re Kelly*, 305 F.2d 909, 916, 134 USPQ 397, 402 (CCPA 1962).) The court in *In re Kelly* stated that "[w]e see no reason why a single structural element such as piston 44, which performs two separate functions, cannot support a claim reciting broadly these separate functions." (The Appellants note, however, that the analysis in *In re Kelly* was with regard to a non-enablement rejection.) The Appellants submit that the fact that an element serves as both a part of a liquid holder and a part of a field applier does not render the claims indefinite. While the language of Claim 1 is broadly drafted, the present claim language would clearly advise the public of the scope of the claim, and thus the Appellants submit that Claims 1-3 are definite under 35 U.S.C. 112, second paragraph. The fact that the claim encompasses additional configurations would easily be recognized by one of skill in the art based on the disclosure in the specification, and such breadth does not render the claims indefinite. (See 2173.04 - Breadth Is Not Indefiniteness.)

For the reasons stated above, the rejection under 35 U.S.C. §112, second paragraph, should be reversed.

THE SECOND ISSUE

Claims 1-3 are not anticipated by Hochberg et al. under 35 U.S.C. §102(b).

As noted in the Appeal Brief, the Appellants submit that Hochberg et al. does not anticipate the claims of the present application, which expressly recite a field applier forming an equipotential surface convexed with respect to the liquid surface.

The Examiner's Answer states that the "[p]rinting head 30 as shown in figure 2A is

convexed with respect to the liquid surface which is upstream of orifice 44 as shown in figures 3B, 4B, and 5B." And therefore "the printing head 30 has an equipotential surface (external surface) especially when no voltage is applied as a result of the homogeneous material." Firstly, the Appellants note that Figures 3B, 4B, and 5B of Hochberg et al. depict embodiments of a head 10 for use with the embodiment of Figure 1 in which the printing head is shown as being of a planar configuration. The embodiment depicted in Figure 2A does show a printing head 30 having a front face that is partially curved. However, it is unclear from a review of Figures 2A (perspective view) and 2B (front view) whether the curved portion of printing head 30 is located coextensively with orifices 44, or electrodes 40, 42, or some combination thereof, since a side cross-sectional view of the printing head 30 is not provided. The location of the electrodes 40, 42 adjacent to one another and located apart from the orifices 44 on the same surface, as depicted in Hochberg et al., will produce a distinctly different field than the field applier described in the present application, and the Appellants submit that the configuration depicted in Hochberg et al. will not produce an equipotential surface that is convexed with respect to a liquid surface of conductive liquid, as recited in the claims.

The Examiner's Answer seems to rely on a state in which no voltage is applied to the electrodes of Hochberg et al. as anticipating the claimed structure. However, as noted above, the actual shape of the curved portion of the printing head 30 with respect to orifices 44 and the liquid surface of the conductive fluid is unclear based upon the lack of such a description or depiction in Hochberg et al. The Appellants submit that a conclusion that such a

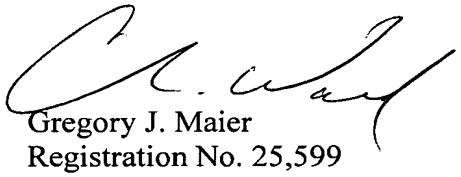
configuration is present in the device of Hochberg et al. is mere speculation, since Hochberg et al. does not provide such a teaching.

For the reasons stated above, the rejection under 35 U.S.C. §102(b) should be reversed.

For the reasons stated above, Appellant maintains its position that Claims 1-3 meet the requirements of 35 U.S.C. §112, second paragraph, and that the prior art does not disclose the liquid sprayer as recited in Claims 1-3. Accordingly, it is respectfully requested that all the rejections still pending in the final Office Action be REVERSED.

Respectfully Submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Attorney of Record

Christopher D. Ward
Registration No. 41,367

Customer Number
22850
Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 10/01)

GJM:CDW:brf
I:\atty\cdw\201081US3\Reply Brief.doc